WHAT IS CLAIMED IS:

1. A method for increasing the throughput of a data converter decision, comprising the steps of:

initiating a data conversion operation of analog signals on an analog input on a data converter by sampling the analog signals on the analog signal input and then converting the sampled analog signals to digital data with a predetermined data conversion algorithm in a data conversion operation;

comparing the digital output of the data converter to a threshold; and

when the output of the data converter is determined by the step of comparing meets a predetermined relationship relative to the threshold, terminating the data conversion operation prior to the complete execution of the data conversion operation on the sampled analog signals .

2. The method of Claim 1, wherein the predetermined data conversion algorithm requires a plurality of steps to perform the data conversion operation to full resolution and wherein less than full resolution is achieved when the output of the data converter is determined by the step of comparing to meet a predetermined relationship.

3. The method of Claim 1, wherein the data conversion algorithm operates over a conversion cycle from the initiation of the data sampling operation to completion thereof at full resolution, and the step of terminating the data conversion operation comprises the step of decreasing the length of the conversion cycle.

4. The method of Claim 3, wherein the data conversion algorithm requires a conversion clock wherein the conversion cycle requires a predetermined number of cycles of the conversion clock to achieve full resolution.

5. The method of Claim 4, wherein each of the cycles of the conversion clock represents a different value of the output of the data converter and the step of comparing is operable to compare the output of the data converter to the threshold on select ones of the clock cycles of the conversion clock

during the conversion cycle and, when the digital value associated with any of the select ones of the clock cycles meets the predetermined relationship, terminating the data conversion operation.

6. The method of Claim 5, wherein and the step of comparing is operable to compare the output of the data converter to the threshold on all of the clock cycles of the conversion clock during the conversion cycle.

7. The method of Claim 3, wherein the data converter is an n-bit SAR data converter and the predetermined data conversion algorithm is a SAR data conversion algorithm and, wherein the SAR data converter operates on a conversion clock that successively tests each bit of the n-bits to determine the value thereof and, after testing each bit of the n-bits, comparing the current resultant digital value to the threshold with the step of comparing.

8. The method of Claim 1, and further comprising the steps of:

providing a plurality of analog inputs;

multiplexing each of the plurality of analog inputs to the input of the data converter for the step of sampling; and

at the termination of a data conversion operation for a given one of the analog signal inputs, switching to another one of the analog signal inputs and initiating another data conversion operation.

9. The method of Claim 8, wherein the threshold is different for at least two of the analog signal inputs when selected for the data conversion operation by the step of multiplexing.

10. A method for increasing the throughput of data conversion operation on a SAR data converter, comprising the steps of:

inputting analog signals to an analog signal input of the data converter;

sampling the analog signals on the analog signal input;

after sampling the analog signals, converting the sampled analog signal value to a digital value with a SAR data conversion operation;

during the SAR data conversion operation, comparing the incomplete digital value generated by the SAR data converter to a threshold value; and

if the incomplete digital value meets a predetermined relationship relative to the threshold value, terminating the SAR data conversion operation.

11. The method of Claim 10, and further comprising the step of terminating the SAR data conversion if the incomplete digital value meets a predetermined relationship relative to the threshold value, generating a control signal that is operable to control a system external to the SAR data converter.

12. The method of Claim 10, wherein predetermined relationship comprises the incomplete digital value exceeding the threshold value.

13. The method of Claim 10, wherein predetermined relationship comprises the incomplete digital value being less than the threshold value.

14. The method of Claim 10, wherein predetermined relationship comprises the incomplete digital value equaling the threshold value.

15. The method of Claim 10, and further comprising the steps of:

providing a plurality of analog inputs;

multiplexing each of the plurality of analog inputs to the analog signal input of the SAR data converter for the step of sampling;

at the termination of a data conversion operation for a given one of the analog signal inputs, switching to another one of the analog signal inputs and initiating another data conversion

operation.

16. The method of Claim 15, wherein the threshold is different for at least two of the analog signal inputs when selected for the data conversion operation by the step of multiplexing.

17. A data converter, comprising:

a sampling device for initiating a data conversion operation of analog signals on an analog input by sampling the analog signals on the analog signal input;

a data conversion device for converting the sampled analog signals to digital data with a predetermined data conversion algorithm in a data conversion operation;

a comparator for comparing the digital output of said data conversion device to a threshold; and

an abort controller for, when the output of said data conversion device is determined by the said comparator to meet a predetermined relationship relative to said threshold, terminating the data conversion operation of said data conversion device prior to the complete execution of the data conversion operation on the sampled analog signals.

18. The data converter of Claim 17, wherein the predetermined data conversion algorithm requires a plurality of steps to perform the data conversion operation to full resolution and wherein less than full resolution is achieved when the output of said data conversion device is determined by said comparator to meet said predetermined relationship.

19. The data converter of Claim 17, wherein the data conversion algorithm operates over a conversion cycle from the initiation of the data sampling operation by said sampling device to completion thereof at full resolution, and said abort controller operable to decrease the length of the conversion cycle.

20. The data converter of Claim 19, wherein said data converter receives on a clock input a conversion clock for use in operating the data conversion algorithm, and wherein the conversion cycle

requires a predetermined number of cycles of the conversion clock to achieve full resolution.

21. The data converter of Claim 20, wherein each of the cycles of the conversion clock represents a different value of the output of the data converter and the step of comparing is operable to compare the output of the data converter to the threshold on select ones of the clock cycles of the conversion clock during the conversion cycle and, when the digital value associated with any of the select ones of the clock cycles meets the predetermined relationship, said abort controller terminating the data conversion operation.

22. The data converter of Claim 21, wherein and said comparator is operable to compare the output of data conversion device to the threshold on all of the clock cycles of the conversion clock during the conversion cycle.

23. The data converter of Claim 19, wherein said data conversion device comprises an n-bit SAR data converter and the predetermined data conversion algorithm is a SAR data conversion algorithm and, wherein said SAR data converter operates on a conversion clock that successively tests each bit of the n-bits to determine the value thereof and, after testing each bit of the n-bits, said comparator operable to compare the current resultant digital value to the threshold.

24. The data converter of Claim 17, and further comprising:

a plurality of analog inputs;

a multiplexer for multiplexing each of said plurality of analog inputs to the input of said data conversion device for the sampling operation; and

at the termination of a data conversion operation for a given one of said analog signal inputs, said multiplexer switching to another one of the analog signal inputs and initiating another data conversion operation.

25. The data converter of Claim 24, wherein the threshold is different for at least two of said analog signal inputs when selected for the data conversion operation by said multiplexor.

26. A SAR data converter, comprising:

an analog signal input for receiving analog input signals;

a sampling device for sampling the analog input signals on said analog signal input;

a data converter for, after sampling the analog input signals, converting the sampled analog signal value to a digital value with a SAR data conversion operation;

a comparator for, during the SAR data conversion operation, comparing the incomplete digital value generated by said data converter to a threshold value; and

an abort controller for, if the incomplete digital value meets a predetermined relationship relative to the threshold value, terminating the SAR data conversion operation.

27. The SAR data converter of Claim 26, wherein said abort controller is further operable to terminate the SAR data conversion if the incomplete digital value meets a predetermined relationship relative to the threshold value, wherein said abort controller is operable to generate a control signal that is operable to control a system external to the SAR data converter.

28. The SAR data converter of Claim 26, wherein the predetermined relationship comprises the incomplete digital value exceeding the threshold value.

29. The SAR data converter of Claim 26, wherein the predetermined relationship comprises the incomplete digital value being less than the threshold value.

30. The SAR data converter of Claim 26, wherein the predetermined relationship comprises the incomplete digital value equaling the threshold value.

31. The SAR data converter of Claim 26, and further comprising the steps of:

a plurality of analog inputs;

a multiplexer for multiplexing each of said plurality of analog inputs to the analog signal input of said data converter for sampling by said sampling device;

said multiplexer, at the termination of a data conversion operation for a given one of the analog inputs, switching to another one of the analog signal inputs for the initiation of another data

conversion operation.

32. The SAR data converter of Claim 31, wherein the threshold is different for at least two of the analog signal inputs when selected for the data conversion operation by said multiplexer.